SURVEY AND RECONNAISSANCE OF SEA TURTLES IN THE NORTHERN GULF OF MEXICO *

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This is a report on the results of an aerial survey of nesting beaches conducted during the period from May 16, 1977 to August 11, 1977. The area covered included all the barrier beaches and offshore islands from the Florida-Alabama state line to the Rio Grande, Texas[1]. Additional historical information is provided in order to compare current nesting activity with previous years as well as anecdotal observations on the occurrence of sea turtles in this region.

INTRODUCTION

The objective of this survey was to extend the coverage of aerial reconnaissance of nesting beaches being conducted by Carr[2] to include all Gulf Coastal States west of Florida. Two species of sea turtles, the Atlantic ridley (Lepidochelys kempi) and the loggerhead (Caretta caretta) are known to nest along this shore. Only two documented nestings of the Atlantic ridley on Padre Island, Texas, existed prior to 1968.[3] Four additional records of Atlantic ridleys nesting on south Padre Island below Mansfield cut have been reported for the years 1968, 1974, and 1976 (2).[4] It is entirely possible other nestings could have been overlooked in recent years, although the south Padre Island beach was patrolled daily during the ridley nesting season (late April to early July) for about the last eight years.[4] To our knowledge, no nesting activity has been reported for north Padre Island (Padre Island National Seashore)

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since the earlier records in 1948 and 1950.[3] Again, this may simply reflect a lack of human encounters or appropriate documentation despite increased vehicular traffic on this island by fishermen, campers and park personnel in recent years. In any case, some incidental nesting by the Atlantic ridley does occur north of its primary rookery located at Rancho Nuevo, Mexico.

For the loggerhead sea turtle, nesting activity has been reported primarily from the eastern Gulf of Mexico (Louisiana, east of the Mississippi River to the Florida panhandle). The number of nesting females involved is only a small fraction of the total female population in the southeastern United States. Approximately 90 percent of the total reproductive effort for the United States is concentrated along the south-central east coast of Florida.[2] Sea turtle nesting in the northern Gulf, outside of Florida, primarily occurred on Chandeleur Island , probably because of its size and remoteness, and to a lesser extent, on the adjacent islands of Ship, Horn and Petit Bois in Mississippi and Alabama.[5] On June 16, 1960, 32 individual tracks, or turtle crawls, were observed on an overflight of the Chandeleur Island chain. Although we did not determine what species of sea turtle made the crawls, the observed nesting activity coincided with the loggerhead season in Florida and Georgia. About two weeks later, on June 29, another overflight was made in Terreborne Parish, west of the Delta. No sign turtle nesting activity or tracks were observed on the Timbalier, Wine, and Isles Derniere group of sea beaches. However, a small, washtub size sea turtle was observed crawling up on one of these beaches from the Gulf side.[6] It was midmorning and may have been a ridley turtle, which usually nests in the daytime. Two years later, on May 19, 1962, the Chandeleur Island chain was visited by boat. Three turtle crawls were found within several hundred yards of each other, but only one nest with eggs was located. Some of the eggs were taken to the mainland, incubated, and the young were identified as loggerheads. During the same summer of 1962, the western most beach in Cameron Parish, Louisiana, was visited by vehicle. No evidence of sea turtles

nesting along this particular beach was obtained, nor were the local residents aware of any sea turtles nesting in the area. Interviews with fishermen and boat captains in 1962, revealed that nesting sea turtles were numerous on the offshore islands in the eastern parishes 20 to 30 years ago and egging trips to Bird, Breton and Chandeleur Islands were very popular. Other sea turtle nesting records for the northeastern Gulf of Mexico west of Florida have been reported from time to time, but it is significant to note that a U.S. Coast Guardsman, stationed on Mississippi's offshore islands, either Ship or Horn, in 1942-43, encountered as many as ten turtles nesting in a single 14-mile night patrol.[7] No estimate of the total nesting population for the northern Gulf states west of Florida was ever made from these few data for the 1960-62 period. It was generally accepted, however, that a reproductive assemblage involving a hundred or so loggerhead sea turtles existed and nested more or less seasonally on the remote stretches of sea beaches located on the offshore islands of eastern Louisiana, Mississippi and Alabama (Bird, Breton, Chandeleur Island in Louisiana; Cat, Ship, Horn and Petit Bois Islands in Mississippi; Petit Bois, Dauphin Islands in Alabama). There is no information on the strength of the nesting effort along this coast prior to this time.

RESULTS OF THE 1977 NESTING CENSUS

The paucity of turtle sign on the hundreds of miles of beaches from Perdido Bay in Florida to the Rio Grande in Mexico reinforces the opinion of most sea turtle biologists that nesting turtle populations are on the decline here. This is especially evident in areas where they were never considered to be abundant. For reasons not completely understood, the area surveyed may not be suitable as nesting habitat and neonate dispersal. Only one sea turtle nest and one turtle track (false crawl) were observed during the entire survey period and geographic coverage. The former was located on Horn Island, Mississippi and the latter on Chandeleur Island

during the July 7 flight. The monthly schedule of flights resulted in a considerable gap in time between observations. However, the lack of rainfall for almost the entire sampling period would be expected to lengthen track life and augment our observations. Heavy rains can obliterate turtle tracks quickly, but the drought conditions probably enhanced the longevity of the turtle sign. This was indeed the case in the nest we first observed on Horn Island on July 7. Personnel of the Gulf Islands National Seashore reported that they found this nest on the afternoon of June 26.[8]

After the 1977 nesting season ended, we received additional information or "ground truth," on nesting activity for the area surveyed. Four crawls and nests were discovered on Chandeleur Island sometime during the third week in June.[9] The nests were located above a shell beach and crawls were not well defined. This may be the reason they were not observed on the July 7th flight. We are aware of another report of turtle crawls seen on Chandeleur Island during the 1977 season by employees of the Louisiana Wild Life and Fisheries Commission, but do not have any details at this time. In any event, some nesting activity still occurs on Chandeleur Island, but it is apparent that it has declined considerably from those earlier years when over 30 tracks could be seen in one flight. Another observation of a loggerhead nesting on South Padre Island was reported to us by Mr. Dearl Adams. Earlier reports in May, 1977, indicated that the size of the crawl was too large for a ridley turtle. Dr. Henry Hildebrand later confirmed that the hatchlings appeared to him to be loggerhead.

The cause of the decline is probably manifold. Egg robbing by humans and egg predation by raccoons, chronic problems everywhere in the United States, cannot be discounted. Accidental capture and subsequent drowning by shrimpers in the heavily trawled coastal waters in the northern Gulf of Mexico is a problem, but the magnitude is not known. Erosion of some of

these low, vulnerable offshore islands has been severe in the last 10 years. Several hurricanes have crossed over the Louisiana-Mississippi coasts, generating storm tides over a large area carrying with them large amounts of sand from the beach platform and dune line and dumping it into the adjacent sea.

A strong southwest squall was blowing on our last flight over the Chandeleurs; the wind driven waves, reinforced by a high tide had flooded large sections of the island. The exposed areas were extremely low relief, and may have been too saturated with water to afford the proper incubating medium for turtle eggs. Loss or degradation of suitable nesting habitat may be the most important factor affecting Louisiana's nesting population today. Cyclic erosion of the low shoreline elsewhere in the state may preclude the establishment of an incipient nesting colony.

Elsewhere along the Texas-Alabama coast, beaches appeared to be suitable for nesting (high platform, well-developed fore dune and dune line), but turtle sign was absent. With the exception of a small section of beach immediately west of the San Bernard River, the western end of Matagorda Peninsula, and Matagorda Island (including St. Joseph), the remaining Texas beaches are accessible by vehicles. If turtles did emerge on these beaches to nest, their tracks would have been completely obliterated by vehicular traffic in some areas. Nowhere, on any remote barrier beach with connections to the mainland, did we find clear stretches without wheel tracks. The same situation existed in the other states, but to a lesser degree (less accessible beaches). However, the beach from Alabama point to the Florida state line showed sign of heavy beach traffic.

If the historical record of sparse nesting is correct, then vehicular traffic cannot be jeopardizing non-existent nesting populations. But if efforts are successful to establish new colonies of

turtles on the beaches of Padre Island, control over the potential disturbance of nesting females and nest destruction by vehicles is mandatory. It may seem puzzling why nesting turtles have not been more abundant on these beaches, at least prior to the period of off-the-road vehicles and just plain cars, but it is not a unique situation. For example, the green sea turtle in Costa Rica nests almost entirely along a twenty mile section of beach. Equally suitable beaches, to our eye, stretch for miles to the south and way up to Nicaragua to the north. The answer may be that the marine environment adjacent to these beaches is unsuitable. In Texas waters, the prevailing surface circulation of onshore currents driven by predominantly southeast winds during the nesting season and subsequent hatching period may be adversely affecting the successful dispersal of hatchling turtles.[10] This in turn may prevent successful establishment of nesting colonies, either man attempted or natural. A few records of hatchling ridleys stranded on Texas beaches[11] may be indicative of adverse offshore currents in this state's coastal waters.

REFERENCES AND NOTES

1. Dates of low altitude flights with fixed wing aircraft (Cessna 172 & 185) by states are as follows: Alabama (5/19, 6/9, 7/7); Mississippi (5/19, 6/9, 7/7, 8/11); Louisiana (5/19); Louisiana east of Mississippi River (6/9, 7/7, 8/11); Texas (5/16, 7/27). Mr. Thomas Moore, Chief of Coastal Fisheries, Texas Parks and Wildlife Dept., kindly provided the aircraft, and Mr. Wayne Wentworth, pilot for TPW, flew the Texas portion of the survey.

2. Carr, David and Peggy H. Carr. 1977. Survey and Reconnaissance of Nesting Shores and Coastal Habitats of Marine Turtles in Florida, Puerto Rico, and the U.S. Virgin Islands. Report to National Marine Fisheries Service (Archie Carr, principal investigator).

3. Carr, Archie. 1961. The Ridley Mystery Today. Animal Kingdom, 64(1):7-12.

4. Personal communication, Mr. Dearl Adams, Brownsville, Texas, July 27, 1977.

5. Ogren, Larry H. Notes on Sea Turtles of Louisiana. Paper presented on 12th Annual Meeting of American Society of Ichthyologists and Herpetologists, Southeastern Division, Ocean Springs, Mississippi, October 27, 1962.

6. Personal communication, Mr. Allen Ensminger, Louisiana Wild Life and Fisheries Commission, New Orleans, Louisiana, July 15, 1962.

7. Personal communication, Mr. Oscar Goff, Kenner, Louisiana, May 24, 1962, and Mr. Bennie A. Rohr, National Marine Fisheries Service, Pascagoula, Mississippi, September 12, 1977.

8. Personal communication, Mr. Glen Voss, Gulf Islands National Seashore, Ocean Springs, Mississippi, June 6, 1977. No eggs were found in the nest site by National Seashore personnel. Two other false crawls were found on this date.

9. Personal communication, Mr. Mike R. Christian, National Marine Fisheries Service, New Orleans, Louisiana, October 28, 1977.

10. Anon. 1976. Environmental Studies, South Texas Outer Continental Shelf, 1975, Plankton, Fisheries and Physical Oceanography. Vol. II, Physical Oceanography. NMFS Gulf Fishery Center, Galveston, Texas.

11. Personal communication, Dr. Henry Hildebrand, Kingsville, Texas, September 13, 1977.